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10/633,160	07/31/2003	Jae Hyun Seo	51876P379	5446

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EXAMINER
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MULL, FRED H

ART UNIT	PAPER NUMBER
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3662

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/633,160

Applicant(s)

SEO ET AL.

Examiner

Fred H. Mull

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7-31-2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### **35 USC § 112 6<sup>th</sup> Paragraph**

The following is a quotation of the sixth paragraph of 35 U.S.C. 112:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

1. Claim(s) 1-8 is/are interpreted by the examiner as invoking 35 USC 112 6<sup>th</sup> paragraph (means plus function). See MPEP § 2181-2186.

### **Claim Rejections - 35 USC § 112**

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

This claim is a single means claim, i.e., where a means recitation does not appear in combination with another recited element of means. As such it is rejected under 35 U.S.C. 112, first paragraph as having undue breadth. See MPEP 2164.08(a) and *In re Hyatt*, 708 F.2d 712, 714-715, 218 USPQ 195, 197 (Fed. Cir. 1983) (A single means claim which covered every conceivable means for achieving the stated purpose

was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor.).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims contain various grammatical errors that appear to be the result of translation into English. The claims should be looked over carefully and corrected.

4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what "second predetermined number of axis" means.

5. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This claim refers to "a third predetermined number of antenna elements", yet depends on claim 1, which only has one predetermined number. The claim should either be made to depend on claim 2, or refer to a second predetermined number.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by

Sim. All citations refer to the English translation of Sim.

In regard to claims 1 and 6-7, Sim discloses:

an array antenna having a plurality of antenna elements for receiving signals of the digital broadcasting service (Fig. 2);

demodulation means for demodulating the receiving signals corresponding to each of antenna elements in the array antenna (p. 8, lines 13-16);

beam-forming means for generating a predetermined number of beamformed signal by applying a beam-forming weights in order to steer the beam to a predetermined direction according to the modulated signal from the modulation means (p. 11, 3<sup>rd</sup> full paragraph to p. 12, final paragraph); and

beam selection means for selectively receiving signals of desired direction according to the beam forming signal (p. 13, first paragraph; 206, Fig. 6).

In regard to claim 2, Sim further discloses the array antenna is a linear array having a first predetermined number of antenna elements (Fig. 2).

In regard to claim 8, Sim further discloses the beam-forming means which eliminates multipath in order to improve equalization performance of the channel equalizer (p. 6, ¶ 2-3; p. 8, final ¶ to p. 10).

7. Claims 1-3 and 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Lo.

In regard to claims 1 and 6-7, Lo discloses:

an array antenna having a plurality of antenna elements for receiving signals of the digital broadcasting service (201, Fig. 2);

demodulation means for demodulating the receiving signals corresponding to each of antenna elements in the array antenna (240);

beam-forming means for generating a predetermined number of beamformed signal by applying a beam-forming weights in order to steer the beam to a predetermined direction according to the modulated signal from the modulation means (col. 3, lines 35-45); and

beam selection means for selectively receiving signals of desired direction according to the beam forming signal (switch control, Fig. 2; col. 3, lines 41-45).

In regard to claim 2, Lo further discloses the array antenna is a linear array having a first predetermined number of antenna elements (201, Fig. 2; col. 2, lines 62-64).

In regard to claim 3, Lo further discloses the array antenna is a circular array antenna having a third predetermined number of antenna elements (col. 2, lines 62-64).

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8. Claims 1-3 and 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Dogan.

In regard to claims 1 and 6-7, Dogan discloses:

an array antenna having a plurality of antenna elements for receiving signals of the digital broadcasting service (110, Fig. 8A);

demodulation means for demodulating the receiving signals corresponding to each of antenna elements in the array antenna (128);

beam-forming means for generating a predetermined number of beamformed signal by applying a beam-forming weights in order to steer the beam to a predetermined direction according to the modulated signal from the modulation means (col. 62, line 17 to col. 63, line 45); and

beam selection means for selectively receiving signals of desired direction according to the beam forming signal (col. 62, line 17 to col. 63, line 45).

In regard to claim 4, Dogan further discloses the array antenna is a planar array antenna having a third predetermined number of antenna elements (110).

In regard to claim 5, Dogan further discloses the demodulation means includes a plurality of demodulators as many as the number of antenna elements in the array antenna (128; col. 27, lines 4-40).

In regard to claims 1 and 6-7, Rudish discloses:

an array antenna having a plurality of antenna elements for receiving signals of the digital broadcasting service (120, Fig. 13; col. 10, lines 19-20);

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demodulation means for demodulating the receiving signals corresponding to each of antenna elements in the array antenna (134);

beam-forming means for generating a predetermined number of beamformed signal by applying a beam-forming weights in order to steer the beam to a predetermined direction according to the modulated signal from the modulation means (col. 7, line 40 to col. 3, line 3); and

beam selection means for selectively receiving signals of desired direction according to the beam forming signal (col. 7, line 40 to col. 3, line 3).

In regard to claim 4, Rudish further discloses the array antenna is a planar array antenna having a third predetermined number of antenna elements (Fig. 12; col. 5, line 66 to col. 6, line 5).

In regard to claim 5, Rudish further discloses the demodulation means includes a plurality of demodulators as many as the number of antenna elements in the array antenna (120, 134, Fig. 13; col. 10, lines 54-61).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 3, and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chelouah.

In regard to claims 1 and 6-7, Chelouah discloses:

an array antenna having a plurality of antenna elements for receiving signals of the digital broadcasting service (Fig. 1);

beam-forming means for generating a predetermined number of beamformed signal by applying a beam-forming weights in order to steer the beam to a predetermined direction according to the modulated signal from the modulation means (p. 387, 1<sup>st</sup> col., section "Introduction", lines 12-15; p. 387, 1<sup>st</sup> col., section "Antenna principle and characterisation", lines 4-6); and

beam selection means for selectively receiving signals of desired direction according to the beam forming signal (p. 387, 1<sup>st</sup> col., section "Introduction", lines 12-15).

Chelouah fails to disclose a demodulation means for demodulating the receiving signals corresponding to each of antenna elements in the array antenna. However, Chelouah discloses that real time video is being transmitted (p. 387, 1<sup>st</sup> col., section "Introduction", line 3). It would have been obvious to have a demodulation means as a way to convert the transmitted signal into a video signal capable of being watched by a human person.

In regard to claim 3, Chelouah further discloses the array antenna is a circular array antenna having a third predetermined number of antenna elements (p. 387, 1<sup>st</sup> col., section "Antenna principle and characterisation", lines 1-3).

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10. The examiner also finds the following reference(s) relevant:

Benhamida, which is similar to Chelouah.

English Translation of KR 20010000582 A, which is a translation of IDS document Ahn.

Applicant is encouraged to consider these documents in formulating their response (if one is required) to this action, in order to expedite prosecution of this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred H. Mull whose telephone number is 703-305-1250. The examiner can normally be reached on M-F 9:00 - 5:00.

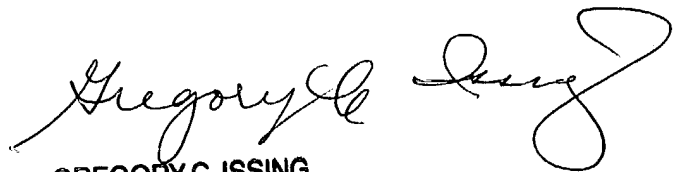
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on 703-360-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Fred H. Mull  
Examiner  
Art Unit 3662

fhm



GREGORY C. ISSING  
PRIMARY EXAMINER